PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Cheng-Hung Ho	Confirmation No. 9230
Serial No.: 10/811,115	Group Art Unit: 2139
Filed: March 26, 2004	Examiner: Schmidt, Kari L
Title: Image Protection System and Method	TKHR Ref. 250908-1250 Top-Team Ref. 0213-A40130US

SUBSTITUTE APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Substitute Appeal Brief is submitted in response to the notice of non-compliant appeal brief. It appears that the underlining of the single word "original" in claim 6, rendered the entire brief non-compliant. This has been corrected. As the appeal brief fee has already been paid, no fee or other submission is believed to be required.

This Appeal Brief under 37 C.F.R. § 41.37 is submitted in support of the Notice of Appeal filed January 3, 2009. A Notice of Panel Decision from Pre-Appeal Brief Review was mailed July 6, 2009.

I. Real Party in Interest

The real party in interest of the instant application is Institute of Information Industry, having its principal place of business at 5F No. 216, Sec. 2, Duenhua S. Rd., Daan Chiu, Taipei, Taiwan, R.O.C., as evidenced by an assignment recorded March 26, 2004 at reel/frame 015157/0939.

II. Related Appeals and Interferences

There are no known related appeals or interferences.

III. Status of Claims

Claims 1-20 were rejected by the FINAL Office Action mailed October 27, 2008, and all pending claims (1-20) are the subject of this appeal.

IV. Status of Amendments

No amendments have been made after the FINAL Office Action, and all amendments submitted prior to that time have been entered. The claims in the attached claims Appendix reflect the present state of Appellants' claims (with the after-Final amendments entered).

V. Summary of Claimed Subject Matter

The claimed inventions are summarized below with reference numerals and references to the written description ("specification") and drawings. The subject matter described in the following appears in the original disclosure at least where indicated, and may further appear in other places within the original disclosure.

Embodiments according to independent claim 1 define an image protection system (see e.g., FIG. 2, reference number 200 and related description, including page 5, lines 3-4), comprising: a first image device (see e.g., FIG. 3, reference number 210 and related description, including page 4, lines 22-23), comprising: a compression unit (see e.g., FIG. 3, reference number 213 and related description, including page 5, lines 14-19) to divide an original image into two image parts according to a compression technique (see e.g., p. 5, line 18), wherein a first image part of the image parts is base image data (see e.g., FIG. 4A, reference character R2 and related description, including page 6, line 1) and a second image part of the image parts is auxiliary image data (see e.g., FIG. 4A, reference characters R1 and R3 and related description, including page 6, lines 2-5), and the base image data and the auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image, and compress the base image data to compressed base image data according to the compression technique (see e.g., p. 6, lines 10-18); an encryption unit (see e.g., FIG. 3, reference number 214 and related description, including page 6, line 19) coupled to the compression unit to receive and encrypt the auxiliary image data to an auxiliary image data cipher (see e.g., p. 6, lines 19-22); and an image composing unit (see e.g., FIG. 3, reference number 215 and related description, including page 6, lines 23-26) coupled to

the compression unit and the encryption unit to receive and compose the compressed base image data and the auxiliary image data cipher into a protected image corresponding to the original image, such that plaintext for the first image part and cipher for the second image part are in the protected image.

Embodiments according to claim 4 further define that the second image device further comprises an anti-transformation unit (see e.g., FIG. 5, reference number 235 and related description, including page 7, lines 19-23) to perform anti-discrete wavelet transformation on the original image after the original image is combined.

Embodiments according to independent clam 11 define an image protection method (see e.g., FIGs. 6 and 7 and related description), comprising the steps of: dividing an original image into two image parts according to a compression technique (see e.g., FIG. 6, reference number S603 and related description, including page 7, lines 27-28), wherein one of the image parts is base image data (see e.g., FIG. 4A, reference character R2 and related description, including page 6, line 1) and the other image part is auxiliary image data (see e.g., FIG. 4A, reference characters R1 and R3 and related description, including page 6, lines 2-5), and the base image data and the auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image; compressing the base image data (see e.g., FIG. 6, reference number S604 and related description, including page 7, lines 29-30) to compressed base image data according to the compression technique; encrypting the auxiliary image data (see e.g., FIG. 6, reference number S605 and related description, including page 8, lines 1-2) to an auxiliary image data cipher; and composing the compressed base image data and the auxiliary image data cipher (see e.g., FIG. 6,

reference number S606 and related description, including page 8, lines 3-7) into a protected image corresponding to the original image, such that plaintext for the first image part and cipher for the second image part are in the protected image.

Embodiments according to claim 14 further define performing an anti-discrete wavelet transformation (see e.g., FIG. 7, reference number S706 and related description, including page 8, lines 19-22) on the original image after the original image is combined.

VI. Grounds of Rejection to be Reviewed on Appeal

Claims 1-3, 8-10, 11-13, and 18-20 are rejected under 35 U.S.C 103(a) as being unpatentable over Zhu ("Image Coding By Folding") in view of Inomata (US 2004/0120517).

Claims 4-7 and 14-17 are rejected under 35 U.S.C 103(a) as being unpatentable over Zhu in view of Inomata, and further in view of Fukushima (US 6,917,384).

VII. Arguments

Claims 1-3, 8-10, 11-13, and 18-20 are rejected under 35 U.S.C 103(a) as being unpatentable over Zhu in view of Inomata

The FINAL Office Action rejected independent claims 1 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Zhu in view of Inomata. These rejections should be overturned. In this regard, independent claims 1 and 11 respectively recite:

> 1. An image protection system, comprising:
> a first image device, comprising:
> a compression unit to ***divide an original image into two image parts according to a compression technique***, wherein a first image part of the image parts is base image data and a second image part of

the image parts is auxiliary image data, and the base image data and the ***auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image***, and ***compress the base image data to compressed base image data according to the compression technique***;

an encryption unit coupled to the compression unit to receive and ***encrypt the auxiliary image data to an auxiliary image data cipher***; and

an image composing unit coupled to the compression unit and the encryption unit to receive and compose the compressed base image data and the auxiliary image data cipher into a protected image corresponding to the original image, ***such that plaintext for the first image part and cipher for the second image part are in the protected image***.

11. An image protection method, comprising the steps of:

dividing an original image into two image parts according to a compression technique, wherein one of the image parts is base image data and the other image part is auxiliary image data, and the base image data and the ***auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image***;

compressing the base image data to compressed base image data according to the compression technique;

encrypting the auxiliary image data to an auxiliary image data cipher; and

composing the compressed base image data and the auxiliary image data cipher into a protected image corresponding to the original image, ***such that plaintext for the first image part and cipher for the second image part are in the protected image***.

(Emphasis Added). Claims 1 and 11 patently define over the cited art for at least the reason that the cited art fails to disclose the features emphasized above.

First, Applicant submits that the Examiner's assertion of "under the broadest reasonable interpretation the division of an image into a host and residual image to obtain a compressed image is a compression technique to obtain the compressed image" is misplaced. It is understood that, ***the Applicant asserts the division manners of the claimed invention and the Zhu reference are different***. The Applicant further submits that, in the Zhu reference, an image is split into two parts of

equal size. *The division manner of images in the Zhu reference is predefined and fixed. That is, each image to be processed by Zhu is forced to be split into two parts of equal size*. In the claimed embodiments, however, ***an original image is divided into two image parts, called base image data and auxiliary image data according to a compression technique***. It is noted that, ***the compression technique is used for subsequently compressing the first image part (the base image data)***. *Nowhere does Zhu disclose that an image is divided into base image data and auxiliary image data* ***according to a compression technique, and the same compression technique is used to compress one of the image parts***. In short, what the Examiner has alleged to be the "broadest reasonable interpretation" of the claim has ignored some of the claimed features and is therefore improper.

Further, the Examiner asserted that, with respect to "the code table representing the quantization values of the image, … the table represents the image data cipher is and encrypted and decrypted from the image data in which later can be used to obtain the actual image, and under the broadest reasonable interpretation a code table represents an auxiliary image cipher and is encrypted based on the image." Applicant respectfully disagrees. In this regard, paragraphs [0026] and [0030] of the Inomata reference provide clear definitions for the quantization table and the coding table. Paragraph [0026] of Inomata reads:

> "The quantizer 12 quantizes values of each of the input nxn frequency components based on a quantization table 14. **The quantization table 14 is a table containing nxn quantization thresholds, and individual table entries (that is, quantization thresholds) are set in advance before quantization processing**. It is possible to use only a single quantization table 14 for all blocks of the data to be compressed, as the quantization table 14, or to use a plurality of quantization tables 14 and to change the quantization table 14 for each of the plurality of blocks.

> **Quantization processing carried out by referring to the quantization table 14 can be general processing being carried out with JPEG compression etc**. For example, as the quantization processing it is possible to have processing where, if values of the frequency components (u,v) (u and v are integers in the range 0--(n-1)) aremades_uv, and thresholds corresponding to these frequency components in the quantization table 14 are set to Q_uv, the equation defined by the following equation is applied to all of the nxn data items and output data r_uv is obtained".

It is understood that, *the quantization table includes quantization thresholds predefined for compressing image blocks, and* ***is not part of the image itself***. Additionally, paragraph [0030] of Inomata reads:

> "**The coding table 18 is a table showing correspondence relationships between values of the quantization data and code words, and is set before encoding processing**. It is possible to apply a single table to all of the data, but it is also possible to prepare a table for each type of data according to the nature of the type. For example, in the case of JPEG, respective coding tables 18 are prepared for a d.c. component and for an a.c. component".

It is clear that, *the coding table* ***is not part of the image itself***. Further, paragraph [0033] of Inomata reads:

> "In parallel with the quantization and entropy encoding, *encryption processing for the* ***quantization table and the coding table*** *is carried out by the encryptor 20*. Obviously, this encryption can be encryption of the ***tables themselves***, but it is also possible to encrypt ***information necessary to reconstruct the table***. For example, in the case of a JPEG encryption table, as is well known, if a table showing number of code words for each code length and coding elements arranged in order of frequency of occurrence is known, it is possible to reconstruct the coding table at the decoding side, which means that the same results can be obtained as encrypting the coding tables themselves, even if the table of number of code words and data of coding elements for order of frequency of occurrence are encrypted."

It is noted that, in the Inomata reference, ***the related tables and information necessary to reconstruct the tables are encrypted.*** In the present application, however, the ***auxiliary image data is encrypted.*** As described in the application, an original image is divided into two image parts, called base image data and auxiliary

image data. Each image part includes a part of the pixel values (image content) of the original image. That is, ***the auxiliary image data includes a part of the pixel values (image content) of the original image.*** It is clear that *the auxiliary image data in the application cannot properly be equated to the tables and information necessary to reconstruct the tables in the Inomata reference* ***since the tables and information necessary to reconstruct the tables in the Inomata reference does not have a part of pixel values of the original image***.

Additionally, claims 1 and 11 recite features of "*composing the compressed base image data and the auxiliary image data cipher into a protected image corresponding to the original image, such that* ***plaintext for the first image part and cipher for the second image part are in the protected image***". In Final Office Action, the Examiner asserted that the claimed features of *composing the compressed base image data and the auxiliary image data cipher into a protected image corresponding to the original image, such that* ***plaintext for the first image part and cipher for the second image part are in the protected image*** have been disclosed by Inomata. Applicant respectfully disagrees.

As described, the ***tables and information necessary to reconstruct the tables in the Inomata reference do not have a part of pixel values of the original image***. In the claimed embodiments, however, the *base image data and the auxiliary image data respectively* ***have a part of pixel values of the original image***. Applicant respectfully asserts that the composing of the compressed base image data and the auxiliary image data cipher of the claimed embodiments cannot be properly equated to the joining of compressed data output from the entropy encoder 16 and encrypted

quantization table output from the encryptor 20 as disclosed in [0035] of Inomata. The claimed embodiments clear recite that ***part of the image data (being compressed) is visible, and part of the image data (being encrypted) is invisible***. Accordingly, for this additional reason, Zhu and Inomata (even if properly combined) do no disclose the features expressly recited in claims 1 and 11.

In this regard, Applicant respectfully submits that neither Zhu nor Inomata teaches or suggests the claimed features of "*dividing an original image into two image parts* ***according to a compression technique***, wherein one of the image parts is the base image data and the other image part is the auxiliary image data, and *the base image data and the* ***auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image***, and compressing the base image data to compressed base image data ***according to the compression technique***" and "composing the compressed base image data and the auxiliary image data cipher into a protected image corresponding to the original image, such that ***plaintext for the first image part and cipher for the second image part are in the protected image***". Accordingly, the applicant respectively asserts that the rejections of claims 1 and 11, and consequently these rejections should be overturned. Insofar as all remaining claims depend from claims 1 or 11, the rejections of all remaining claims should be overturned for the same reasons.

As a separate and independent basis for the patentability of all claims, Applicant submits that the combination of Zhu and Inomata is improper and therefore does not render the claims obvious. In this regard, the Office Action combined Inomata with Zhu to reject the claims on the solely expressed basis that "it would have been obvious … in

order to avoid the risk of image data disclosure due to interception on the internet or as a result of being viewed by unauthorized persons." (see e.g., Office Action, p. 6)

This rationale is both incomplete and improper in view of the established standards for rejections under 35 U.S.C. § 103.

In this regard, the MPEP section 2141 states:

> The Supreme Court in KSR reaffirmed the familiar framework for determining obviousness as set forth in Graham v. John Deere Co. (383 U.S. 1, 148 USPQ 459 (1966))… As reiterated by the Supreme Court in KSR, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court are as follows:
>
> (A) Ascertaining the differences between the claimed invention and the prior art; and
>
> (B) Ascertaining the differences between the claimed invention and the prior art; and
>
> (C) Resolving the level of ordinary skill in the pertinent art.

In addition:

> When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:
>
> (A) The claimed invention must be considered as a whole;
>
> (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
>
> (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention and
>
> (D) Reasonable expectation of success is the standard with which obviousness is determined.

Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

As reflected above, the foregoing approach to obviousness determinations was recently confirmed by the United Stated Supreme Court decision in KSR

INTERNATIONAL CO. V. TELEFLEX INC. ET AL. 550 U.S. 1, 82 USPQ2d 1385, 1395-97 (2007), where the Court stated:

> In Graham v. John Deere Co. of Kansas City, 383 U. S. 1 (1966), the Court set out a framework for applying the statutory language of §103, language itself based on the logic of the earlier decision in Hotchkiss v. Greenwood, 11 How. 248 (1851), and its progeny. See 383 U. S., at 15–17. The analysis is objective:
>
> "Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." Id., at 17–18.

Indeed, as now expressly embodied in MPEP 2143, "[t]he ***key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious***. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit." (*Emphasis added, MPEP 2143*). "Objective evidence relevant to the issue of obviousness ***must*** be evaluated by Office personnel." (MPEP 2141). "The key to supporting any rejection under 35 U.S.C. 103 is the ***clear articulation of the reason(s)*** why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 ***should be made explicit***. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that '[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'" (MPEP 2141).

Simply stated, the Office Action has failed to at least (1) ascertain the differences between and prior art and the claims in issue; and (2) resolve the level of ordinary skill in the art. Furthermore, the alleged rationale for combining the references is merely an improper conclusory statement that embodies clear and improper hindsight rationale. As noted above, the Office Action combined Inomata with Zhu on the alleged basis that "in order to avoid the risk of image data disclosure due to interception on the internet or as a result of being viewed by unauthorized persons." (*citing* paragraph 0005 of Inomata). However, absolutely no discussion was set forth in the Office Action as to why this alleged benefit (cited in paragraph 0005 of Inomata) would have particular relevance in the structure of Zhu. That is, based on the rationale of the Office Action, Inomata could be combined with ANY other reference in the same field of art, for this very same reason. Clearly, such an approach is not consistent with the requirements of 35 U.S.C. § 103(a) requiring a suggestion or motivation for the <u>particular</u> combination of references.

For at least these additional reasons, Applicant submits that the rejections of all claims are improper and should be overturned.

Claims 4-7 and 14-17 are rejected under 35 U.S.C 103(a) as being <u>unpatentable over Zhu in view of Inomata, and further in view of Fukushima</u>

The Office Action rejected dependent claims 4-7 and 14-17 under 35 U.S.C. § 103(a) as being unpatentable over Zhu in view of Inomata and further in view of Fukushima. Applicant respectfully disagrees and requests that these rejections be overturned (for the following additional reasons).

Claim 4 recites:

> 4. The system of claim 3 wherein the second image device further comprises an anti-transformation unit to perform anti-discrete wavelet transformation on the original image after the original image is combined.

(Emphasis Added). Claim 4 patently defines over the cited art for at least the reason that the cited art fails to disclose the features emphasized above. The Examiner alleged that this claimed feature is disclosed in Col. 10, lines 20-39 of Fukushima. Applicant disagrees.

In this regard, this cited portion of Fukushima states:

> As a result of the above decoding, a series of sequences including quantized coefficient values is obtained, and the sequences are output to the subsequent inverse quantization unit 314. The inverse quantization unit 314 inversely quantizes the coefficient values of the input sequences, and stores the resultant discrete wavelet transformation coefficients in the frame memory 319. In a case where decoding of all sequences is specified by the decode controller 320, all sub-bands are decoded. For instance, in a case where two levels of division shown in FIG. 3B are performed, the inversely quantized transformation coefficients are stored as shown in FIG. 9B in the frame memory 319.
>
> Described next is the step of performing inverse discrete wavelet transformation by the inverse discrete wavelet transformation unit 315 on the transformation coefficients stored in the frame memory 319. FIG. 9A shows a detailed configuration of the inverse discrete wavelet transformation unit 315. First, the inverse discrete wavelet transformation unit 315 vertically reads the transformation coefficients from the LL2 and LH2, stored in the frame memory 319, thereby up-sampling the coefficients at a ratio of 1:2, then performs filtering with G0 on LL2, performs filtering with G1 on LH2, and the resultant data are added. With respect to the HL2 and HH2, the same processing is performed. Next, the inverse discrete wavelet transformation unit 315 horizontally reads the results of the above processing, performs up-sampling on the results obtained from LL2 and LH2 and performs filtering with G0, performs up-sampling on the results obtained from HL2 and HH2 and performs filtering with G1, and the resultant data are added. By the above processing, one level of synthesis is completed.

As can be readily verified from even a cursory review of the foregoing, there is no mention whatsoever of a “wavlet” in this cited portion of Fukushima, much less the

claimed performance of an anti-discrete wavelet transformation on the original image. For at least this reason, the rejection of claim 4 should be withdrawn.

Claim 14 embodies a similar feature and has been rejected on the same basis as claim 4. Therefore, the rejection of claim 14 should be withdrawn for the same reasons. Insofar as claims 5-6 depend from claim 4 and claims 15-16 depend from claim 14, the rejections of these claims should be withdrawn for the same reasons.

As an independent basis for overturning the rejections of claims 4-7 and 14-17, Applicant respectfully disagrees with the articulated basis for combining Fukushima with the combination of Zhu and Inomata. In this regard, the Office Action stated that "one of ordinary skill in the art would have been motivated to combine the teachings in order to automatically set an appropriate region of an image in order to perform coding." (Office Action, p. 11). However, absolutely no discussion was provided as to how this alleged motivation related to the claimed feature of performance of an anti-discrete wavelet transformation on the original image. As such, the combination of Fukushima with the combination of Zhu and Inomata is misplaced, and the corresponding rejection of claims 4-7 and 14-17 should be overturned on this basis.

CONCLUSION

In summary, it is Appellants' position that Appellants' claims are patentable over the applied cited art references and that the rejection of these claims should be overturned. Appellants therefore respectfully request that the Board of Appeals overturn the Examiner's rejection and allow Appellants' pending claims. In addition to the claims shown in the claims Appendix VIII, Appendix IX attached hereto indicates that there

is no evidence being attached and relied upon by this brief. Appendix X attached hereto indicates that there are no related proceedings.

A credit card authorization is provided herewith to cover the fee associated with the accompanying appeal brief. No additional fee is believed to be due in connection with this submission. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

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VIII. Claims Appendix under 37 C.F.R. § 41.37(c)(1)(viii)

The following are the claims that are involved in this Appeal.

1. An image protection system, comprising:

a first image device, comprising:

a compression unit to divide an original image into two image parts according to a compression technique, wherein a first image part of the image parts is base image data and a second image part of the image parts is auxiliary image data, and the base image data and the auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image, and compress the base image data to compressed base image data according to the compression technique;

an encryption unit coupled to the compression unit to receive and encrypt the auxiliary image data to an auxiliary image data cipher; and

an image composing unit coupled to the compression unit and the encryption unit to receive and compose the compressed base image data and the auxiliary image data cipher into a protected image corresponding to the original image, such that plaintext for the first image part and cipher for the second image part are in the protected image.

2. The system of claim 1 further comprising:

a second image device, comprising:

an image decomposition unit to receive and decompose the protected image into the compressed base image data and the auxiliary image data cipher;

a decryption unit coupled to the image decomposition unit to receive and decrypt the auxiliary image data cipher to the auxiliary image data using a decryption key; and

a decompression unit coupled to the image decomposition unit and the decryption unit to receive the compressed base image data and the auxiliary image data, decompress the compressed base image data to the base image data, and combine the base image data and the auxiliary image data to recover the original image according to the compression technique.

3. The system of claim 2 wherein the first image device further comprises a transformation unit to perform discrete wavelet transformation on the original image in advance.

4. The system of claim 3 wherein the second image device further comprises an anti-transformation unit to perform anti-discrete wavelet transformation on the original image after the original image is combined.

5. The system of claim 4 wherein the first image device further comprises a quantization unit to quantize each coefficient of the original image after the discrete wavelet transformation.

6. The system of claim 5 wherein the second image device further comprises an anti-quantization unit to anti-quantize each coefficient of the original image before the anti-discrete wavelet transformation.

7. The system of claim 1 wherein the compression technique is region of interest (ROI) compression.

8. The system of claim 1 wherein the compression technique is resolution compression.

9. The system of claim 1 wherein the compression technique is quality compression.

10. The system of claim 1 wherein the compression unit further compresses the auxiliary image data.

11. An image protection method, comprising the steps of:

dividing an original image into two image parts according to a compression technique, wherein one of the image parts is base image data and the other image part is auxiliary image data, and the base image data and the auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image;

compressing the base image data to compressed base image data according to the compression technique;

encrypting the auxiliary image data to an auxiliary image data cipher; and

composing the compressed base image data and the auxiliary image data cipher into a protected image corresponding to the original image, such that plaintext for the first image part and cipher for the second image part are in the protected image.

12. The method of claim 11 further comprising an image recovery method, comprising the steps of:

decomposing the protected image into the compressed base image data and the auxiliary image data cipher;

decrypting the auxiliary image data cipher to the auxiliary image data using a decryption key;

decompressing the compressed base image data to the base image data according to the compression technique; and

combining the base image data and the auxiliary image data to recover the original image according to the compression technique.

13. The method of claim 12 further comprising performing discrete wavelet transformation on the original image in advance.

14. The method of claim 13 further comprising performing anti-discrete wavelet transformation on the original image after the original image is combined.

15. The method of claim 14 further comprising quantizing each coefficient of the original image after the discrete wavelet transformation.

16. The method of claim 15 further comprising anti-quantizing each coefficient of the original image before the anti-discrete wavelet transformation.

17. The method of claim 11 wherein the compression technique is region of interest (ROI) compression.

18. The method of claim 11 wherein the compression technique is resolution compression.

19. The method of claim 11 wherein the compression technique is quality compression.

20. The method of claim 11 further comprising compressing the auxiliary image data.

IX. Evidence Appendix under 37 C.F.R. § 41.37(c)(1)(ix)

None.

X. Related Proceedings Appendix under 37 C.F.R. § 41.37(c)(1)(x)

None.